

PROJECT NUMBER: 1806
PROJECT TITLE: New Tobacco Processes
SECTION LEADER: S. R. Wagoner
PERIOD COVERED: September, 1988

I. PROJECT ART - PILOT PLANT SUPPORT

- A. Objective: To provide processes for converting and casing stem materials for the Bermuda Hundred Pilot Plant.
- B. Results: Batches of Louisville CRS (cut at 53 and 150 cpi) and D Pilot Plant CRS (cut at 90 and 150 cpi) were cased with monopotassium citrate and shipped to the Bermuda Hundred Pilot Plant. This allowed the BHPP to conduct a series of tests to determine the effect of cut width on adsorber pressure drop.
- C. Plans: Continue to produce stem products as required by Project ART.

II. PROJECT ART - COMMERCIAL PROCESS DEVELOPMENT

- A. Objective: To conduct trials providing information for development of the ART commercial process.
- B. Results: A program was initiated to reduce the spotting of cigarettes by ART filler. An accelerated laboratory spotting test was qualitatively correlated with actual cigarette spotting audit data. It was determined that the unextracted DL blend (uncased, cased, and cased plus aftercut) does not have the tendency to cause spots that the extracted filler has. Current efforts are devoted to examination of the wax layer produced by hot versus cold recovery, and the remaining non-wax filler from those same runs. In addition, post-ART tobacco treatments, such as the Hauni steam tunnel, will be evaluated for potential to reduce cigarette spots.

Laboratory experiments were conducted to determine if residual ammonia in extracted filler could be reduced through reaction with sugars. The experimental grid consisted of filler moisture level (20 and 30% OV), temperature (60 and 80C), and reaction time (2 and 5 hours). The experiment showed that while temperature and time are controlling factors, times greater than 2 hours are required to significantly reduce the soluble ammonia level. This conclusion was reinforced by a pilot plant trial in which post-ART filler was cased with fructose, superheated in the Hauni WD tunnel, and dried in the Hambro dryer. The chemical results showed no significant reduction in soluble ammonia for the treated filler compared to the starting material. **2000832275**

The ART process computer model was used to indicate the levels of alternate bases required to replace one-half of the 3.0% AB casing target. This showed that the necessary addition levels of citrate

and lactate salts were so high (>5%) that the product would be subjectively unacceptable. Hydroxide solutions (calcium, magnesium, sodium, potassium) were also entered into the model. Of these, only the sodium and potassium hydroxides were soluble at the required concentration for casing the filler. Cigarettes will be prepared with these solutions for subjective evaluation.

Extracted filler was expanded in D Pilot Plant for product development work on low tar ART cigarettes. The preferred tower temperature for ART filler is in the range of 500-550F.

- C. Plans: Identify the necessary primary processing and/or equipment requirements to reduce spots on ART cigarettes.

Continue to evaluate in the laboratory alternate acids and bases for potential utilization in the ART process.

III. BINDER DEVELOPMENT

- A. Objective: Develop methods to produce binder systems for the foam bonded ends and low density rod programs.
- B. Results: For foam bonded ends, solutions of NaCMC, containing lower than typical licorice additions (0.5, 0.75, 1.0 vs 2.0%) were tested on the Molins apparatus. Following laboratory testing of the foams produced from the different solutions, a test run was made with a 4% NaCMC/1% licorice solution to produce cigarettes for loose ends and subjective evaluation. The 1% licorice appeared to be beneficial producing a less stable foam which broke and absorbed into the cigarette in less than one minute.
- C. Plans: Continue to provide support as required to the above programs.

IV. TMCI-ASTA SHEET

- A. Objective: To develop a subjectively and physically acceptable reconstituted tobacco sheet using the TMCI process and PM-RCB technology for international application.
- B. Results: Tarragona ASTA products were judged to be only slightly different subjectively from RCB at 7% in a Spanish Marlboro blend. Further evaluation will be made using ASTA from future trials when processing conditions will be improved. The Spanish tobacco was received for grinding to three different degrees in NuWay Tobacco Company. These products will then be used in Tarragona to optimize the particle size for improved ASTA physical quality.

The Tarragona plant was visited and further mechanical changes were seen to be necessary.

The first drawings of the Cadiz ASTA installation were reviewed and comments were returned to TMCI. The process technology manual

was also updated to clarify operating procedures for TMCI.

C. Plans:

1. Evaluate the mechanical modifications made to improve the Tarragona plant operation by running trials using Spanish tobacco ground in Spain to 95% <400 mesh.
2. Grind the Spanish tobacco blend to 95% <120, <200 and <400 mesh to optimize the tobacco particle size necessary to produce a higher quality ASTA sheet in Tarragona.

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